CLAIM + DETAILED DESCRIPTION

[Claim(s)]
[Claim 1] Thermal transcription material characterized by adding the synthetic resin which has a fluorination alkyl group and a polyorgano siloxyl machine in said synthetic resin layer in the thermal transcription material which consists of a synthetic resin enveloping layer prepared in the ink layer and this film undersurface which were established in a base film and this film upper surface.
[Claim 2] Thermal transcription material according to claim 1 whose synthetic resin is a synthetic resin which has a fluorination alkyl group, a polyorgano siloxyl machine, and a polyoxyalkylene group.
[Claim 3] Thermal transcription material according to claim 1 whose synthetic resin is a synthetic resin which has a fluorination alkyl group, a polyorgano siloxyl machine, a polyoxyalkylene group, and an alkyl group.
[Claim 4] Thermal transcription material according to claim 3 whose alkyl group is a branched alkyl group.
[Claim 5] The treatment agent for thermal transcription material which consists of a fluorination alkyl-group content ethylenic unsaturated monomer (A) and a copolymer which polymerizes considering a polyorgano siloxyl group containing ethylenic unsaturated monomer (B) as an essential ingredient.
[Claim 6] The treatment agent for thermal transcription material according to claim 5 whose copolymers are said monomer (A), and a monomer (B) and a copolymer with a polyoxyalkylene group content ethylenic unsaturated monomer (C) [Claim 7] The treatment agent for thermal transcription material according to claim 5 whose copolymers are a monomer (B), and a monomer (C) and a copolymer with an alkyl-group content ethylenic unsaturated monomer (D). [said monomer (A), and]
[Claim 8] The backing agent for thermal transcription material which consists of a copolymer according to claim 5.

[Detailed Description of the Invention]
[0001]
[Industrial Application] This invention relates to the new thermal transcription material and the treatment agent for thermal transcription material which are used by the recording method which transfers a color material (thermal ink) by heat impression.
[0002]

[Description of the Prior Art] the record method which the information processing system was developed by versatility and was suitable for each information processing system, and equipment are developed and adopted with rapid development of the information industry in recent years. The thermal record method has lightweight and compact equipment to be used as one of such the record methods, there is no noise, and it excels also in operativity and conservativeness, and colorization is also easy and it is used widely these days.

[0003] Although this thermal transcription material has generally formed the hot printing layer in one field of a base material, by heating the hot printing layer alternatively in the thermal head of thermal-ink-transfer-recording equipment, and being made to fuse or soften, hot printing is alternatively carried out to a recording form, it has in it, and record of printing etc. is performed. More specifically, make the side which should carry out for relativity to a recording form as it is flat. The thermal head of the thermal-ink-transfer-recording equipment which projected and formed in the predetermined part of the flat side the heating unit which should meet crosswise [of thermal transcription material] is used. The heating unit is contacted to said thermal transcription material, and the hot printing layer of this thermal transcription material is fused or softened, and hot printing of this is carried out to a recording form, it has it in it, and record of printing to a recording form etc. is performed.

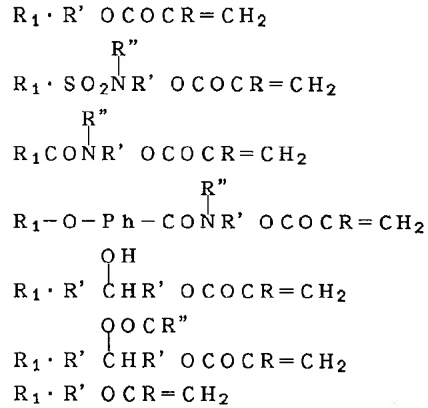
[0004] By the way, in order for the demand to high-definition-izing and high-speed-izing of printing to deepen and to fill such a demand these days, to transfer a high-resolution dot pattern at very short time is needed. In order to make area of each dot small in order to obtain a high-resolution dot pattern, and to transfer for a short time, (1) although methods, such as making thin (3) base films used as the ink layer which uses (2) low-melt point point or the low-temperature sublimability color which raises the temperature of a thermal head, and raising thermal conductivity, can be considered The method of (2) is the point of the stability of an ink layer, and the reliability of printing, the method of (3) has a problem in respect of the hardness of a film, or a wrinkle development, respectively, and it can become an effective means to raise the temperature of the thermal head which is the method of (1). Moreover, when dot area is made small, to raise the temperature of a thermal head is needed from a point of the effective thermal efficiency per area.

[0005] Thus, in [although it is necessary to raise the temperature of a thermal head from both sides of improvement in the speed and high-definition-izing to 300-400 degrees C generally] this temperature, The phenomenon which a base sheet welds to a thermal head in the case of printing, and what is called sticking occur, the run of thermal transcription material may become impossible, or when excessive, a base sheet may fracture from a sticking portion.

[0006] The method of avoiding sticking and preparing a heat-resistant protection layer in the back of a base sheet is proposed. For example ** On the surface as a metal layer or an abrasion proof layer How (JP,57-129789,A number) to prepare the resin layer which added the surface active agent of the solid or the semi-solid etc. in the method (JP,55-7467,A number) ** ordinary temperature which prepares heat-resistant-resin layers, such as method (JP,57-74195,A No.) ** silicone which prepares a silicon-oxide layer, and epoxy, Or there is a method (JP,56-155794,A number) of preparing the layer which made ** slippage inorganic pigment contain in a heat-resistant-resin layer etc.

[0007] However, it is in needing a heavy price vacuum evaporationo process by the method of the above-mentioned ** - ** ****, The thermal energy for heat curing is not great, do not spend a long time for obtaining sufficient heat-resisting property, a run of the thermal transfer sheet in the case of printing is not smooth, or some which added lubricant have adhesion of the filth to a stamp means, or since

dispersion of a pigment is not good, there is a fault, like printing becomes indistinct.
[0008]
[Problem(s) to be Solved by the Invention] Moreover, the purpose of this invention has resolution in offering the thermal transcription material and the treatment agent for thermal transcription material which can perform stably printing which was highly excellent in quality of image at high speed, without solving such a problem and weld with a head and a film and run hindrance arising at the time of heating by a high temperature thermal head.
[0009]
[Means for Solving the Problem] The purpose of this invention that the fault of the conventional technology like the above should be solved The result of wholeheartedly research, By adding the synthetic resin which has a fluorination alkyl group and a polyorgano siloxyl machine in the synthetic resin enveloping layer prepared in the base film undersurface of thermal transcription material, it discovers that the problem like the above is solvable, and came to complete this invention.
[0010] Namely, this invention is set to the thermal transcription material which consists of a synthetic resin enveloping layer prepared in the ink layer and this film undersurface which were established in a base film and this film upper surface. It is related with the treatment agent for thermal transcription material which consists of a synthetic resin which has the thermal transcription material and fluorination alkyl group which are characterized by adding the synthetic resin which has a fluorination alkyl group and a polyorgano siloxyl machine in said synthetic resin layer, and a polyorgano siloxyl machine.
[0011] Although each thing of well-known common use can use it as a fluorination alkyl-group content ethylenic unsaturated monomer (A) concerning this invention For example, the acrylate which has a fluorination aliphatic series machine (meta), vinyl ester, vinyl ether, malate, fumarate, an alpha olefin, etc. can be mentioned. In addition, acrylate (meta) shall name methacrylate, acrylate, and fluoro acrylate generically.
[0012] Any are sufficient, although a perfluoroalkyl machine or a perfluoro alkenyl group with 3-21 carbon atoms was mentioned as a fluorination aliphatic series machine of a monomer (A) and the shape of a normal chain, branched state, and annular or these were combined. Furthermore, a fluorination aliphatic series machine is not cared about even if an oxygen atom or a nitrogen atom intervenes into the principal chain.
[0013] The following general formulas can show a fluorination alkyl-group content ethylenic unsaturated monomer (A), for example.
[0014]
[Formula 1]



[0015] [-- however, R1 shows a perfluoroalkyl machine with 3-21 carbon atoms, R shows a hydrogen atom or a methyl group, R' shows an alkylene group with 1-10 carbon atoms, R" shows a hydrogen atom or the alkyl group of 1-10, and Ph shows a phenyl group.] The thing like the next is specifically mentioned as such a monomer (A).

[0016]

[Formula 2]

A－1：$C_8F_{17}CH_2CH_2OCOCH=CH_2$

A－2：$C_8F_{17}SO_2N(C_3H_7)CH_2CH_2OCOCH=CH_2$

A－3：$C_7F_{15}CON(C_2H_5)CH_2CH_2OCOCH=CH_2$

A－4：$C_6F_{13}CH_2CH_2SO_2NHCH_2CH_2OCOCH=CH_2$

A－5：$C_9F_{17}O-Ph-CONHCH_2CH_2OCOCH=CH_2$

A－6：$C_3F_7O[CF(CF_3)CF_2O]_3CF(CF_3)CONH(CH_2)_3OCOCH=CH_2$

A－7：$C_8F_{17}CH_2CH_2OCOC(CH3)=CH_2$

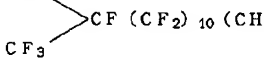
A－8：$C_8F_{17}SO_2NCH_2CH_2OCOC(CH3)=CH_2$

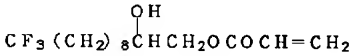
A－9：$C_7F_{15}CON(C_2H_5)CH_2CH_2OCOC(CH_3)=CH_2$

A－10：$C_6F_{13}CH_2CH_2SO_2NHCH_2CH_2OCOC(CH_3)=CH_2$

A－11：$C_9F_{17}O-Ph-CONHCH_2CH_2OCOC(CH_3)=CH_2$

A－12：$C_3F_7O(CF(CF_3)CF_2O)_3CF(CF_3)CONH(CH_2)_3OCOC(CH3)=CH_2$

A－13： 

A－14： 

A－15：$H(CF_2)_8SO_2N(CH_3)CH_2CH_2OCOC(CH_3)=CH_2$

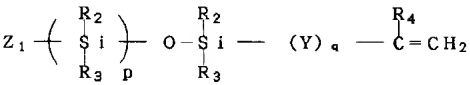
A－16：$H(CF_2)_8CH_2CH_2OCOC(CH_3)=CH_2$

[0017] Moreover, as these monomers (A), a perfluoroalkyl machine is contained as a fluorination alkyl group, and 10 to 70weight % of a fluorination alkyl-group content ethylenic unsaturated monomer has especially desirable fluorine atom content five to 80weight %.

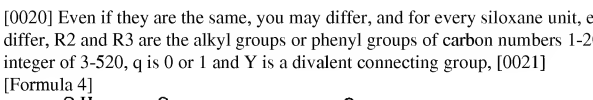
[0018] Although each thing of well-known common use can use it with the polyorgano siloxyl group containing ethylenic unsaturated monomer (B) concerning this invention For example, if a vinyl group, an acrylyl group, a methacryloyl machine, or a fluoro acrylyl group is connected with ****** or both ends of polysiloxane through a divalent connecting group, any are sufficient, for example, it is specifically shown by the following general formulas.

[0019]

[Formula 3]

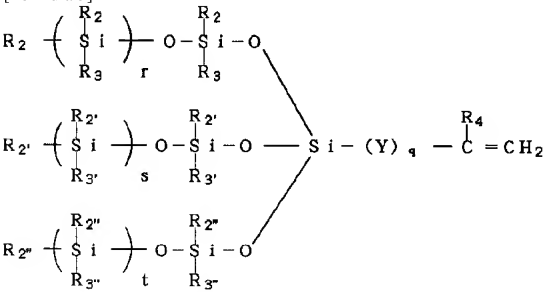


[0020] Even if they are the same, you may differ, and for every siloxane unit, even if the same, you may differ, R2 and R3 are the alkyl groups or phenyl groups of carbon numbers 1-20 among [type, p is the integer of 3-520, q is 0 or 1 and Y is a divalent connecting group, [0021]
[Formula 4]



〔但し、n，mは２～６の整数である。〕であり、R_4は水素原子、メチル 基またはフッ素原子であり、Z_1はメチル基、フェニル基、または$CH_2=C-(Y)_q-$である。〕にて表わされる化合物、

[0022] Or a general formula [0023]
[Formula 5]



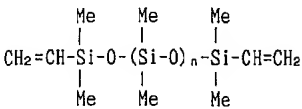
[0024] [-- a formula -- inside -- R -- two -- ' -- R -- two -- " -- R -- three -- ' -- R -- three -- " -- the alkyl group of carbon numbers 1-20, or a phenyl group -- it is -- Even if these are the same, you may differ, and for every siloxane unit, even if the same, you may differ, r, s, and t are the integers of 1-20, even if these are the same, you may differ, and Y, q, R2, R3, and R4 are the above and this meaning. The compound expressed with] is mentioned.

[0025] The thing like **** is illustrated as a more concrete thing of the polydimethyl siloxyl machine content ethylenic unsaturated monomer of the monomers (C).

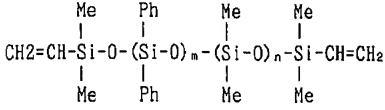
[0026]

[Formula 6]

B－1：



B－2：



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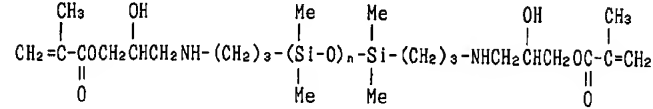
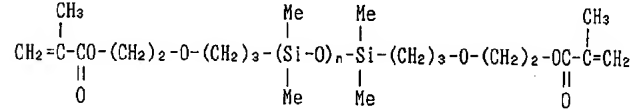


B－4：



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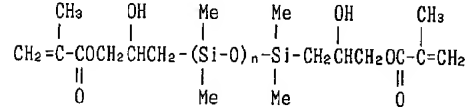
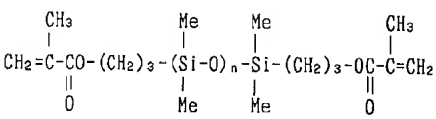
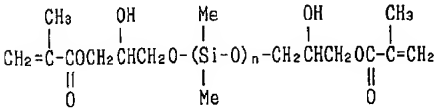


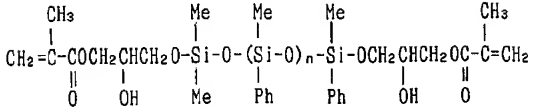
B－6：



[0027]
[Formula 7]
B－7：



B－8：



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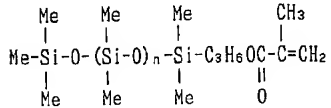

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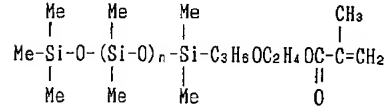
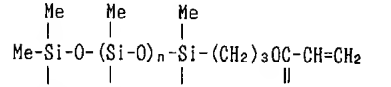
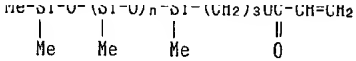
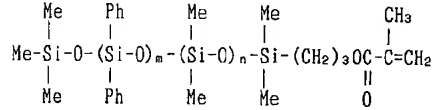


B－11：





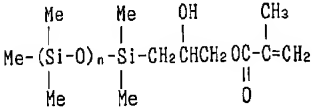
B－１２：



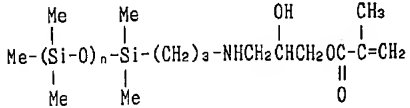
[0028]

[Formula 8]

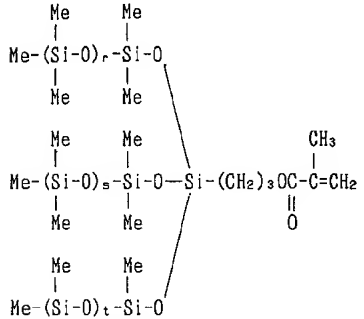
B－１３：

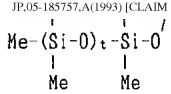


B－１４：



B－１５：

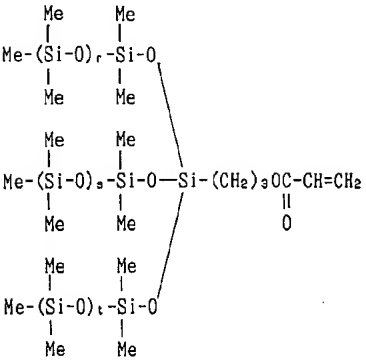




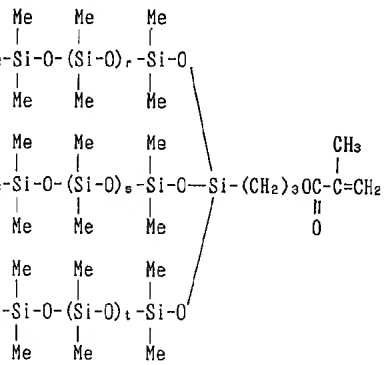
[0029]

[Formula 9]

B－16：



B－17：



[0030] However, Me and Ph express a methyl group and a phenyl group, respectively. Although methacryloyl machine fluoro a vinyl group, an acrylyl group, or an acrylyl group is possible as these monomers (B), since the acrylyl group or methacryloyl machine in the point of polymerization reactivity is excellent, especially the thing containing these is desirable.
[0031] Although the polymerization rate in particular of the copolymer in the treatment agent for thermal transcription material of this invention is not restricted, usually Per (Monomer A) 100 weight part, It is desirable that it is a 30 - 100 weight part especially at the point of excelling in the heat-resisting property of a monomer (B) 10 - 150 weight parts, and the copolymer obtained especially and the slippage at the time of a thermal transcription ribbon run.
[0032] [an agent] although the treatment agent for thermal transcription material of this invention may be the copolymer of a monomer (A) and a monomer (B) In order to make more advanced than the copolymer which turns into a monomer (A) from (B) leveling nature at the time of spreading to the base film which is a base material The copolymer which the polyoxyalkylene group content ethylenic unsaturated monomer (C) was used [copolymer] together, and made it polymerize with said monomer (A) and a monomer (B) is desirable. although the copolymerization ratio in particular of a monomer (C) is not restricted -- per (Monomer A) 100 weight part -- **** for usual 50 - 200 weight parts -- things are desirable.
[0033] The polyoxyalkylene group content ethylenic unsaturated monomer concerning this invention is a monomer which has an ethylene nature unsaturation double bond simulataneously in the both ends or ****** of a nonionic machine. For example, the monomer which has an ethylene nature unsaturation double bond simulataneously in a polyoxyalkylene group, both ends, or ****** is illustrated.
[0034]
[Formula 10]

C－1：$CH_2=CHCOOCH_2CH_2O(CH_2CH_2O)_nH$　　n＝5～25

C－2：$CH_2=CHCOOCH_2CH_2O[CH_2CH(CH_3)O]_m(CH_2CH_2)_nH$

m，n＝5～25

C－3：

$CH_2=CHCOO(CH_2CH_20)_l[CH_2CH(CH_3)O]_m(CH_2CH_2O)_nH$

l，m，n＝5～25

C－4：$CH_2=CHCOOCH_2CH_2O(CH_2CH_2O)_nCH_3$

n＝5～25

C－5：

$CH_2=CHCOOCH_2CH_2O(CH_2CH_2O)_n[CH_2CH(CH_3)O]_mH$

m，n＝5～25

C－6：$CH_2=C(CH_3)COOCH_2CH_2O(CH_2CH_2O)_nH$

n＝5～25

C－7：

$CH_2=C(CH_3)COOCH_2CH_2O[CH_2CH(CH_3)O]_m(CH_2CH_2O)_nH$

m，n＝5～25

C－8：$CH_2=C(CH_3)COOCH_2CH_2O(CH_2CH_2O)_l[CH_2CH(CH_3)O]_m(CH_2CH_2O)_nH$

l，m，n＝5～25

C－9：$CH_2=C(CH_3)COOCH_2CH_2O(CH_2CH_2O)_nCH_3$

n＝5～25

C－10：$CH_2=CHCOO(CH_2CH_2O)_nC_4H_9$　　n＝5～25

C－11：$CH_2=CHCOO[CH_2CH(CH_3)O]_mH$　m＝5～25

C－12：$CH_2=CHCOOCH_2CH_2O(CH_2CH_2CH_2CH_2O)_nH$

n＝5～25

[0035]

[Formula 11]

C－13：$CH_2=C(CH_3)COO(CH_2CH_2O)_nC_4H_9$

n＝5～25

C－14：$CH_2=C(CH_3)COO[CH_2CH(CH_3)O]_mH$

m＝5～25

C－15：$CH_2=C(CH_3)COO(CH_2CH_2O)_l$ ┐
└$[CH_2CH(CH_3)O]_m(CH_2CH_2O)_nH$

l，m，n＝5～25

C－16：

$CH_2=C(CH_3)COOCH_2CH_2O(CH_2CH_2CH_2CH_2O)_nH$

n＝5～25

C－17：

$CH_2=C(CH_3)COOCH_2CH_2O(CH_2CH_2O)_nCH_3$

n＝5～25

C－18：

$CH_2=C(CH_3)COO(CH_2CH_2O)_nOCC(CH_3)=CH_2$

n＝1～25

C－19：

$CH_2=C(CH_3)COO(CH_2)_nOOCC(CH_3)=CH_2$

n＝5～25

C－20：

$CH_2=C(CH_3)COO[CH_2CH(CH_3)O]_m(CH_2CH_2O)_n$ ┐
└$OCCH=CH_2$

m＋n＝3～15

[0036] [the copolymer used for the thermal transcription material of this invention / moreover, the copolymer which used together the alkyl-group content ethylenic unsaturated monomer (D) with this monomer (A) and (B) further, and was made to polymerize] It is desirable from ****** being good and the workability at the time of time shortening at the time of thermal transcription material manufacture and spreading to a base film improving, since it becomes low foamability more, and making more advanced leveling nature discover.

[0037] The alkyl-group content ethylenic unsaturated monomers (D) said here are an alkyl group and a monomer which has an ethylene nature unsaturation double bond simulataneously, and the alkyl group may take the shape of a normal chain, branched state, and annular or which structure which combined them.

[0038] As such a monomer, alkyl (meta) acrylate with 1-30 carbon atoms like the next is mentioned, for example.

[0039]

[Formula 12]

D－1：$CH_2=CHCOOCH_3$

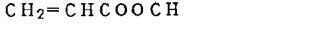
D－2：$CH_2=CHCOOCH_2CH_2CH_3$

D－3：

D－4：$CH_2=CHCOO(CH_2)_5CH_3$

D－5：$CH_2=CHCOOCH$

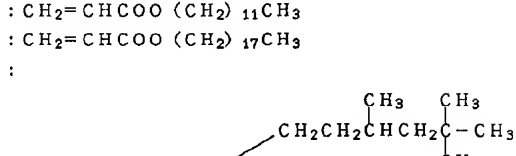
D－6：



D－7：$CH_2=CHCOO(CH_2)_{11}CH_3$

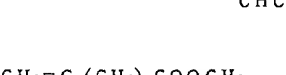
D－8：$CH_2=CHCOO(CH_2)_{17}CH_3$

D－9：



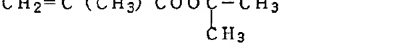
D－10：$CH_2=C(CH_3)COOCH_3$

D－11：



D－12：$CH_2=C(CH_3)COO(CH_2)_5CH_3$

D－13：



CH_2CH_3

D－14：$CH_2=C(CH_3)COO(CH_2)_{11}CH_3$

D－15：$CH_2=C(CH_3)COO(CH_2)_{17}CH_3$

[0040] As these monomers (D), the ethylenic unsaturated monomer containing an alkyl group with 8-12 carbon atoms is desirable, and especially the ethylenic unsaturated monomer that contains a branched state alkyl group especially is desirable.
[0041] the point that excel in the heat-resisting property of a synthetic resin enveloping layer also in a usual 100 - 250 weight part, and sufficient low foamability is acquired per (Monomer A) 100 weight part although the copolymer rate in particular of a monomer (D) is not restricted -- **** for 150 - 220 weight parts -- things are desirable.
[0042] when obtaining the thermal transcription material which does so the effect which was markedly alike and was excellent in all the points It is desirable to use the treatment agent for thermal transcription material which consists of plural copolymers which made two or more sorts of components of the quarterpolymer which polymerized using - (D) for all, or these (monomer A) monomer (A) - (D) polymerize using two or more sorts or arbitrary components altogether.
[0043] The treatment agent for thermal transcription material of this invention said monomer (A), (B), (C), and (D) Block polymerization, Although the method of well-known common use of solution polymerization, suspension polymerization, emulsion polymerization, etc. can be applied and the polymerizing method in particular is not limited Since the treatment agent for thermal transcription material which the solution-polymerization method to which copolymerization of this monomer (A), (B), (C), and the (D) is carried out using a radical initiator, a photosensitizer, and a chain transfer agent if needed in an organic solvent makes the purpose may be manufactured directly, it is desirable also especially in a manufacturing method. Thus, as for the copolymer obtained, it is desirable to usually have the weight average molecular weight of 5000-100000 by polystyrene conversion also in 1000 or more.
[0044] As a radical initiator used if needed on the occasion of copolymerization Azobisisobutyronitril, azobisiso valeronitrile, benzoyl peroxide, potassium persulfate, ammonium persulfate, etc. as a photosensitizer For example, benzophenone, acetophenone, benzoin, 1-hydroxy cyclohexyl phenyl ketone, 2-hydroxy 2-methyl 1-phenyl 1-ON etc. is mentioned, for example for lauryl mercaptan, dodecyl mercaptan, thioglycolic acid octyl, perfluoro octyl ethyl mercaptan, etc. as a chain transfer agent.
[0045] As a solvent, methyl alcohol, ethyl alcohol, isopropyl alcohol, Butyl alcohol, ethylene glycol monoethyl ether, ethylene glycol dibutyl ether, Alcohols, such as propylene glycol monomethyl ether and propylene glycol diethylether, Ketone, such as acetone, methyl ethyl ketone, methyl isobutyl ketone, and cyclohexanone, Ether, such as wood ether and methylethyl ether, methyl acetate, Ester, such as ethyl acetate and butyl acetate, chloroform, dichloroethane, Aromatic hydrocarbon, such as aliphatic hydrocarbon, such as chlorinated solvents, such as par chloroethylene and carbon tetrachloride, hexane, heptane, octane, TAPEN, and kerosene, toluene, xylene, and benzene, is mentioned.
[0046] It is not what a well-known base film is conventionally used as it is as a base film used for this invention, and is restricted especially. For example, polyester (for example, polyethylene terephthalate), polyamide, A film with a thickness of 1-50 micrometers of polycarbonate, cellulose ester, nylon, polyether, polyacetal, polyolefine, polyimide, a polyphenylene sulfide, polypropylene, polysulfone, fluorine polymer, a condenser paper, the Glassine paper, etc. is mentioned.

[0047] As an ink layer prepared in the base film upper surface, conventionally well-known things, such as a thermofusion nature ink layer and heat sublimability ink ****, are used as they are, and are not restricted in particular, for example.
[0048] A thermofusion nature ink layer prepares for one surface of the base film like the above-mentioned the ink for thermal fusion transcription layer formation which consists of a wax containing the colorant like a color or a pigment, and is obtained by forming the thermal fusion transcription layer which consists of this ink.
[0049] This ink uses waxes with a suitable fusing point, for example, paraffin wax, microcrystalline wax, carnauba wax, a urethane system wax, etc. as a binder, blends colorants, such as carbon black, and various kinds of colors, a pigment, and distributes.
[0050] Moreover, also about a heat sublimability ink layer [one surface of the base film like the above-mentioned] The color and binder resin of a well-known method, i.e., sublimation transcription nature, are conventionally dissolved or distributed in a suitable solvent, coating liquid is prepared, and it is obtained by applying this coating liquid to one field of said base film, drying, and forming a thermal sublimation transcription layer. As a color useful to formation of such a thermal sublimation transcription layer, each sublimability color currently conventionally used for the thermal sublimation transcription film can be used. Specifically, a disperse dye, a basic dye, an oil color, etc. are used. Moreover, as binder resin used with the above-mentioned color, each conventionally well-known binder resin can use it for such a purpose. Usually, a heat-resisting property is high and what does not bar shift of a color when moreover heated is chosen. For example, polyamide system resin, polyester system resin, an epoxy resin, polyurethane resin, Vinyl system resin, such as the Pori acrylate resin and polyvinyl pyrrolidone, cellulose system resin, polyvinyl alcohol system resin, petroleum system resin, novolac type phenol resin, polystyrene system resin, polyolefine system resin, etc. are used.
[0051] Although any of addition ink layer independent [on the synthetic resin enveloping layer independence under a base film, the ink layer on the upper surface of a base film and both the layers of a synthetic resin enveloping layer at the bottom, and the upper surface of a base film] are sufficient as the treatment agent for thermal transcription material of this invention, its addition form of said two persons is desirable.
[0052] [the treatment agent for thermal transcription material of this invention] the above-mentioned wax for binders and 0.1 per resin 100 weight part for binders - 30 weight part, and by carrying out 0.5-10 weight part addition preferably The dispersibility of the leveling nature at the time of the coating to a base film, a pigment, or a color and the slide nature between the recording form in the case of printing and an ink ribbon can be further raised as compared with the former.
[0053] As a heat-resistant overcoat used for this invention, each synthetic resin, such as conventionally well-known silicone resin, an epoxy resin, a melamine resin, a phenol resin, fluororesin, polyimide resin, and cellulose nitrate, can use it. Of course, synthetic resins may be two or more sorts of mixtures which are different even when it is independent. A heat-resistant overcoat is represented by the copolymer which made an above-mentioned fluorination alkyl-group content ethylenic unsaturated monomer (A) and an above-mentioned polyorgano siloxyl group containing ethylenic unsaturated monomer (B) the synthetic resin for making it form with the essential ingredient. It is what added the synthetic resin which has a fluorination alkyl group and a polyorgano siloxyl machine, and should constitute, and what is necessary is just to prepare it in a base film so that it may become a thin film. Of course, you may prepare this copolymer so that it might be constituted as a principal component and may become a thin

film.
[0054] This thin film applies to a base film the varnish which makes resin like **** a principal component, heats, and is formed, or those films are formed in a base film as a lamination. As for the amount of addition of the treatment agent for thermal transcription material of this invention, it is desirable to carry out 0.1-50 weight part addition to the synthetic resin 100 weight part which is a principal component. It is desirable especially to carry out 0.5-20 weight part addition in that it excels in the heat-resisting property of the heat-resistant overcoat obtained especially, slippage, un-blocking nature, and leveling nature. Even if the heat-resistant overcoat obtained in this way does not have blocking nature and the exothermic temperature of a thermal head becomes more than the softening temperature of a base film, it does not soften, or even if it carries out softening fusion, it has the character which it is hard to weld to a thermal head.
[0055] The thermal transcription material of this invention can be used in arbitrary form, such as the shape of a typewriter ribbon, and the shape of a wide tape like a line printer.
[0056]
[Example] Next, a work example and a comparative example explain this invention still in detail. However, the range of this invention is not limited at all by the following work example.
[the example of reference] -- the typical method for manufacturing the copolymer of this invention in this example -- the duality of a perfluoroalkyl compound and the piece end methacrylate of polydimethyl siloxyl machine content (molecular weight 5000) -- the example of a copolymer explains.
[0057] They are C8F17SO2N(C3H7) CH2CH2 OCOCH=CH2 (A-2)61g and piece end methacrylate of polydimethyl siloxyl machine content [molecular weight in a glass reaction container (content volume of 500ml). (It abbreviates to M.W. hereafter) 5000 (B-9)]33g and isopropyl alcohol (it abbreviates to IPA hereafter) 400g are put in, and it **** to 50 degrees C, agitating under nitrogen-gas-atmosphere mind, and the inside of a system is made uniform. Next, lauryl mercaptan 6.0g and Azobisisobutyronitril 3.0g are added, **** is performed to 75 degrees C in 30 minutes, and a copolymerization reaction is carried out at this temperature for 7 hours. The nonvolatile matter of the obtained copolymer was 20.1 weight %. The polystyrene conversion molecular weight by the gel PAMI nation chromatograph of this copolymer was Mw=9000. (Let this copolymer be the copolymer 1.) the monomer hereafter shown in the 1st table and the 2nd table -- ** -- a fixed quantity was used and each copolymer was obtained like the above. Various monomers (A) The copolymer solution was obtained like the copolymer 1 except having used - (D) at a rate shown in the 1st table and the 2nd table. IPA was added further if needed and it adjusted to 20 weight % of nonvolatile matters. The result of the determination of molecular weight of these polymers was described in the 1st table and the 2nd table. These copolymers are used as treatment material for thermal transcription material.
[0058]
[Table 1]

[0059]
[Table 2]

第 1 表

参考例	共 重 合 体 組 成	共重合体の重量平均分子量(Mw)	共重合体の番号
1	A-2/B-9(M.W.5000) =65/35	8000	1
2	A-2/B-9(M.W.5000)/C-9 =40/20/40	10000	2
3	A-2/B-9(M.W.5000)/C-9/D-6 =20/10/30/40	13000	3
4	A-2/B-9(M.W.5000)/C-9/C-18/D-6 =20/10/25/5/40	16000	4

第 2 表

参考例	共重合体組成	共重合体の重量平均分子量(Mw)	共重合体の番号
5	A-1/B-10(M.W.2000) =70/30	7500	5
6	A-6/B-4(M.W.2000)/C-1 =50/10/40	11000	6
7	A-13/B-2(M.W.5000)/C-10 =40/15/45	13000	7
8	A-2/B-9(M.W.5000)/C-6/D-11 =20/10/40/30	9500	8
9	A-1/B-1(M.W.5000)/B-9(M.W.1000)/C-2/D-7 =25/5/10/30/30	15000	9
10	A-12/B-15(M.W.2000)/C-14/D-5/D-14 =30/10/20/20/15	14000	10
11	A-2/B-9(M.W.5000)/C-17/C-18/D-6/D-10 =20/10/25/5/35/5	18000	11

[0060] The thermal transcription nature ink constituent which has the following presentation was applied to the upper surface of a polyester film with a work-example 1 thickness of 9 micrometers, it dried and the 4-micrometer-thick ink layer was obtained.

[0061]
(Component) (weight part)
Carnauba wax 20 paraffin-wax (65 degrees C of fusing points) 30 oxidation wax 10 vaseline 10 Carbon black The resin composition thing which has the following presentation is applied to the undersurface of the 20 occasion aforementioned polyester film, and it dries. The thermal transcription material which has a 1-micrometer-thick heat-resistant protection layer was obtained.
[0062]
(Component) (weight part)
Ethyl cellulose 10 copolymer 10.5 toluene 40 Ethanol Replaced with two to 30 work-example 4 copolymer 1, and the copolymers 2-4 were added in the heat-resistant protection layer, respectively, and also make it be the same as that of a work example 1. Thermal transcription material was obtained.
[0063] In addition, the treatment agent of the work example 2 was excellent in leveling compared with it of a work example 1. The treatment agent of the work example 3 was further excellent in leveling nature compared with it of a work example 2, and excellent also in the blister piece. The treatment agent of the work example 4 was more excellent in leveling nature and blister piece nature compared with it of a work example 3.
Replaced with work-example 5 copolymer 1, and the copolymer 5 was added in the heat-resistant protection layer, and also thermal transcription material was obtained like the work example 1.
Replaced with work-example 6 copolymer 1, and the copolymer 9 was added in the heat-resistant protection layer, and also thermal transcription material was obtained like the work example 1. The treatment agent used here was considerably excellent in leveling nature and blister piece nature.
Replaced with work-example 7 copolymer 1, and the copolymer 11 was added in the heat-resistant protection layer, and also thermal transcription material was obtained like the work example 1. The treatment agent used here was considerably excellent in leveling nature and blister piece nature.
[0064] In addition, although thermal transcription material was produced like [copolymers / 6, 7, 8, and 10] the above-mentioned work example and the same examination was done, any thermal transcription material's being equivalent to it of a work example 1 or the transfer picture superior to it was obtained.
Comparative example 1 copolymer 1 was not added in a heat-resistant protection layer, and also thermal transcription material was obtained like the work example 1.
0.5 weight part addition of the copolymer 4 was carried out at both components of the ink layer in work-example 8 work example 4, and the heat-resistant protection layer, and also thermal transcription material was obtained like the work example 1. The treatment agent used here was considerably excellent in leveling nature and blister piece nature.
[0065] Sticking of each thermal transcription material obtained by these work examples 1-8 and a comparative example 1, the soil under thermal transcription material, and the definition of the transfer picture were evaluated. The result is shown in the 3rd table. It was observed whether when it prints by 60 c.p.s.s of printing speed using the thermal printer by Texas Instruments, Inc. (PO-1000), a heating head would drive sticking smoothly.
[0066] After the soil under [by an ink layer] thermal transcription material neglected each thermal transcription material by 50 degrees C and 100g/cm2 load for 10 hours, it was observed. In addition, the thermal transcription material which a heat-resistant protection layer was not prepared, and also was obtained like the work example 1 as an object for comparison (blank) was used.
[0067] The definition of the transfer picture observed the situation of the printing dot with the scanning

electron microscope. Evaluation was performed in accordance with the following basis.
Thing:x with an indistinct thing:** printing dot which has a blot in a thing:O printing dot with a clear thing:O printing dot in which a printing dot is very clear a little [0068]
[Table 3]

第 3 表

	スティッキング	インキ層による下面の汚れ	転写画像
実施例1	な し	な し	○
2	な し	な し	○
3	な し	な し	○
4	な し	な し	◎
5	な し	な し	○
6	な し	な し	◎
7	な し	な し	◎
比較例1	少しあり	少しあり	△
実施例8	な し	な し	◎
ブランク	あ り	少しあり	×

[0069]
[Effect of the Invention] The thermal transcription material of this invention the treatment agent for thermal transcription material which used the fluorination alkyl-group content ethylenic unsaturated monomer and the polyorgano siloxyl group containing ethylenic unsaturated monomer as the essential ingredient A base film, By adding to the heat-resistant protection layer prepared in the ink layer and this film undersurface which were established in this film upper surface Moreover, resolution can perform stably printing which was highly excellent in quality of image at high speed, without producing the phenomenon, i.e., sticking, in which weld with a head and a film and run hindrance are encountered at the time of heating by a high temperature thermal head. It is.

[Translation done.]